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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/360,582	07/26/99	BLACKBURN	MIT-0211

PM92/0306

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MUN, K	EXAMINER
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3641	PAPER NUMBER
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DATE MAILED: 03/06/00²

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/360,582

Applicant(s)

BLACKBURN, BRANDON W.

Examiner

K. Kevin Mun

Art Unit

3641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claims ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 26 July 1999 is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☐ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☐ received.
2. ☐ received in Application No. (Series Code / Serial Number) ____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 14) ☒ Notice of References Cited (PTO-892)
- 15) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 16) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 17) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 18) ☐ Notice of Informal Patent Application (PTO-152)
- 19) ☐ Other: _____

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DETAILED ACTION

Drawings

1. This application has been filed with informal drawings which are acceptable for examination purposes only. Formal drawings will be required when the application is allowed.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the moderator/reflector must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.
3. The drawings are objected to under 37 CFR 1.83(a) because they fail to show in which direction the generated neutron in the target is directed as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Correction is required.

Specification

4. The disclosure is objected to because of the following informalities: The disclosure is insufficient as to what the differences between elements with reference numerals 12 and 30 are. If they were the same, the examiner suggests to change it to be the same since they may lead to confusion. If they were meant to designate different elements of the invention, the disclosure is insufficient as to how and in what manner

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they are different, as to what portion of element 12 the element 30 represent, and as to what element 12 encompasses.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

6. Claims 1-8 rejected under 35 U.S.C. 112, first paragraph, as based on a disclosure which is not enabling. A manner of the liquid gallium exiting out of the target chamber (40) as being critical or essential to the practice of the invention, but not included in the claim(s) and/or specification is not enabled by the disclosure. See *In re Mayhew*, 527 F.2d 1229, 188 USPQ 356 (CCPA 1976). In the present case, the manner of the liquid gallium exiting in and out of the target chamber (40) is critical or essential to the practice of the invention as to Claim 1.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. Claims 1-2 and 4-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Eggers (US 5392319) in view of any of Lidsky et al. (US 5784423), Prince (US 4811687) or Smither et al. (US 4953191).

Eggers discloses the applicant's basic inventive concept, a neutron source target cooled by liquid gallium, substantially as claimed with the exception of the coolant being the liquid gallium. However, any of Lidsky et al., Prince, or Smither et al. shows the liquid gallium being used as a coolant for an irradiation target or a similar device to be old and conventional in the temperature-controlling art as well as in the irradiation target art. It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize such a conventionally known coolant material to the target of Eggers in order to enhance cooling of the high-temperature target. Further as to Claims 2, 6 and 8, it is conventional in the art and hence obvious to provide a reservoir for a coolant and a pump to deliver the coolant.

9. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Eggers (US 5392319) in view of any of Lidsky et al. (US 5784423), Prince (US 4811687) or Smither et al. (US 4953191) as applied to claim 1 above, and further in view of Schlyer et al. (US 5917874).

Eggers in view of any of Lidsky et al., Prince, or Smither et al. discloses the applicant's basic inventive concept, a neutron source target cooled by liquid gallium, substantially as claimed with the exception of the coolant provided with a nozzle impinging upon the target. However, Schlyer et al. (US 5917874) discloses a coolant

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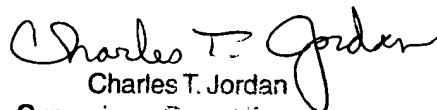
injected through a nozzle in a jet impinging upon a target is old and conventional in the irradiation target cooling art. It would have been obvious to one having ordinary skill in the art at the time of the invention to utilize such a conventionally known method of injecting a coolant to the target of Eggers in order to enhance cooling of the high-temperature target.

Conclusion

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to K. Kevin Mun whose telephone number is 703-305-1839. The examiner can normally be reached on Tue-Fri 8:00-5:30.

11. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-1113.

K. Kevin Mun
March 2, 2000


Charles T. Jordan
Supervisory Patent Examiner
Group 3600